$$\tau = \rho\left(\alpha + \frac{\beta|\epsilon|}{2}\right)\epsilon \qquad (3)$$

where α and β could be functions of r and t, and ϵ is the mean rate of strain. This leads to production of turbulence in the outer potential flow!

The correct equation for the angular momentum of a trailing vortex is given in Ref. 7. Further support for these comments based on experimental observations and theoretical considerations and the analysis of the trailing vortices are given in Ref. 8.

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Reply to comments of M. S. Uberoi

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We gladly grant that there is scanty evidence for self-generated turbulence in line vortices. However, it appeared, and still appears to us that a mechanism for production of turbulence in vortices may reside in the outside portion of the fluid near the velocity maximum. A Rayleigh type of instability seems possible there. It is suggested by some of Focke's results.[1] Once a ring of turbulence is formed, the turbulence would diffuse in and out and extend over the whole fluid mass. Of course, Eq. (10) of our paper[2] does not represent such a complex mechanism, and its possible recurrence during the life of the vortex, in any detail, but we believe that the average behavior may be taken into account by an equation like the one we adopted. We welcome any constructive criticism which may lead to a better equation.

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Reply to the comments of M. S. Uberoi

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We do not accept Uberoi's grounds for his statement that turbulent line vortices do not exist. They are based on experiments on a trailing vortex.[1] In Ref. 2, we have presented the conditions under which a turbulent trailing vortex may be approximated by a turbulent line vortex. These conditions are not satisfied by Uberoi's experiment.

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